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The Theory of the Monetary Circuit*

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The theory of the circuit faces the fundamental questions of any macroeconomic theory, namely how the level of activity of an economic system is determined and what determines the distribution of the social dividend among the main social groups. The basic idea is that, in a wage economy, possession of wealth as such does not imply being admitted to a share of real income. Since access to money and credit is a key factor in a wage economy, producers of money and credit enjoy a privileged position and are admitted as such to a share of total product. It is therefore a typical aspect of the theory of the circuit that in any. macroeconomic model banks and firms can never be merged into one single sector.

La théorie du circuit se trouve confrontée aux mêmes questions fondamentales que toute autre théorie macroéconomique, à savoir la nature des déterminants du niveau d'activité d'un système économique tout comme de la répartition du produit social entre les principaux groupes sociaux. L'idée de base est que, dans une économie fondée sur le salariat, la possession de la richesse en soi ne signifie pas un accès au revenu réel. Dans la mesure où l'accès au crédit et à la monnaie constitue un facteur clé dans une telle économie, les producteurs de la monnaie et du crédit bénéficient d'une position privilégiée et ont droit, à ce titre, à une part du produit total. Il en résulte une caractéristique typique de la théorie du circuit, à savoir que les banques et les entreprises ne peuvent nullement être agrégées pour constituer un secteur unique.

I. – INTRODUCTION

Over the last ten to fifteen years, a *theory of the economic circuit* has been developed mostly in the French and Italian literatures. Contributors to this theory emphasize the point that a correct understanding of the workings of an economic system can only be acquired if the economy is analysed from the outset *as a monetary economy*. In their view, the mere fact of barter being replaced by quicker and less cumbersome monetary exchanges is not enough to qualify a true monetary economy. The existence of money alters the structure and inner workings of economic systems, modifies the behavioural functions of the agents, and gives new content to the equilibrium position as for activity levels as well as for income distribution[1].

The theory of the monetary circuit emerges as a reaction to the standard neo-classical interpretation of economic equilibrium as the result of individual choices taken by isolated and independent agents. The model of the circuit is built so as to stress the existence of relationships among macro-groups, going beyond individual choices. In this perspective, marginal theory of distribution is rejected, in favour of a theory stressing both the power of the banks, in that they provide the necessary means of payment, and the power of the firms, in that they determine the allocation of productive resources. In this view, the level of employment and the distribution of income, far from being determined by individual negotiations in the framework of the general determination of relative prices, is determined by decisions taken jointly by banks and firms.

Two main groups are active in France. One of them, the so-called Dijon School, is led by Bernard Schmitt and Alvaro Cencini. The favourite problems of this group, beyond the basic analysis of the nature and role of money, are a re-examination of Keynesian economics and an analysis of international payments. Another group is led in Paris by Alain Parguez and in Bordeaux by Frédéric Poulon, and is mainly concerned with the analysis of activity levels, unemployment, and stabilization policies.

The authors of the circuit reject General Equilibrium Theory, which they consider to be the theory of a barter economy, with money added *ex post* (and with considerable effort) as a technical means of exchange. They also reject present-day standard macroeconomics, based on the so-called Hicksian IS-LM model, on the grounds that it considers the money stock as an exogenous variable, that it omits to specify the nature and origins of money, that it does not analyse the relationships

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between banks and firms, and that it relies on a strictly marginal theory of income distribution.

It would be more difficult to define the relationships existing between the Theory of the Circuit and the so-called Post-Keynesian School. Probably different attitudes are taken as regards the first generation of post-Keynesians, like Kaldor, Joan Robinson or Richard Kahn, as contrasted to later representatives like the late S. Weintraub, P. Davidson, J. Kregel, or B. Moore. In general, the attitude would be that while the post-Keynesian school correctly rejects the marginal theory of income distribution, still it ignores the fundamental role of banks and does not analyse the relationships between banks and firms (this of course would not apply to H. Minsky and B. Moore).

The authors who most closely seem to inspire the Theory of the Circuit are J.M. Keynes (mostly the *Treatise on Money*, much less the *General Theory*) and Kalecki. Elements from the Marxian doctrine are surely present in the debates on the monetary circuit, in spite of the fact that none of the authors belonging to the school seems to accept the Marxian theory of value.

Whether the circuit approach can be really considered an original contribution of contemporary theory is a debatable point. In fact, long before the French theory of the circuit was developed, a rigorous analysis of the process of money creation had been supplied by the leading economists of the Swedish and German schools, such as Wicksell (1898), Schumpeter (1912), Hahn (1920), and Schneider (1962). Beside that, the idea that decisions concerning production are the responsibility not only of entrepreneurs but of bankers as well, was one of the basic points in Schumpeter's *Theory of Economic Development*. As for the theory of income distribution, present-day circuit theorists, as already said, tend to follow Kalecki and, to a lesser extent, Keynes. Finally, the idea that banks and firms participate in the distribution of the surplus product, which gets divided into industrial profit and interest, goes back to Marx.

This paper will attempt to give the flavour of the theory of the Monetary Circuit. This is probably one of the very few attempts to provide a coverage of this theory in English. The relevant literature is scattered among French, Italian, and Canadian authors (an overview of the theory is Lavoie, 1987).

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II. – THE DEFINITION OF MONEY

The definition of money and the analysis of the money supply process are basic issues in the theory of the economic circuit. In principle, the monetary base in a closed economy can be created through two different channels : it can be either supplied directly by the Central Bank to commercial banks, or it can be introduced by a Government deficit not covered by newly issued bonds. Still, most of the present-day models of a closed economy tend to limit their definition of the supply of money to the latter source, thus identifying the supply of monetary base with a Government deficit not covered by public debt[2]. (In an open economy, the monetary base can also originate from a balance of payments surplus).

Circuit theorists tend to adopt the opposite assumption. At least by way of a first approximation, they tend to assume away any money financing of Government deficits, and to consider that *the money stock is increased or decreased by means of debt and credit operations taking place between the Central Bank and commercial banks*. The ideal model of the theory of the circuit therefore resembles the so-called *Wicksellian model of a pure credit economy*, with the addition of a Central Bank[3].

The starting point of the theory of the circuit, is that a true monetary economy is inconsistent with the presence of a commodity money. A commodity money is by definition a kind of money that any producer can produce for himself. But an economy using as money a commodity coming out of a regular process of production, cannot be distinguished from a *barter economy*. A true monetary economy must therefore be using a *token money*, which is nowadays a paper currency[4].

However, to say that a monetary economy makes use of paper currency is not enough to identify a monetary economy. If, for instance, goods are traded *against promises of payment* such as bills of exchange, any act of trade gives rise to a debt of the buyer and to a credit of the seller. A similar economy is not a monetary economy, but *a credit economy*. If in a credit economy at the end of the period some agents still owe money to other ones, a final payment is needed, which means that no money has been used. If, on the other hand, final payments were continually postponed and replaced by new promises, buyers would enjoy and unlimited *privilege of seignorage*. Money is therefore something different from a regular commodity and something more than a mere promise of payment.

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In order for money to exist, three basic conditions must be met :
a) money has to be *a token currency* (otherwise it would give rise to barter and not to monetary exchanges);
b) money has to be accepted *as a means of final settlement* of the transaction (otherwise it would be credit and not money);
c) money must not grant privileges of seignorage to any agent making a payment.

The only way to satisfy those three conditions is to have payments made by means of *promises of a third agent*, the typical third agent being nowadays a bank. When an agent makes a payment by means of a cheque, he satisfies his partner by the promise of the bank to pay the amount due. Once the payment is made, no debt and credit relationships are left between the two agents. But one of them is now a creditor of the bank, while the second is a debtor of the same bank. This insures that, although making final payments by means of paper money, agents are not granted any kind of privilege. For this to be true, any monetary payment must therefore be *a triangular transaction*, involving at least three agents, the payer, the payee, and the bank (Schmitt, 1975, p. 14; Schmitt and Cencini, 1982, p. 139; Cencini 1984, p. 31; Parguez, 1985b). Real money is therefore credit money. Even a metallic coin is credit money : as Keynes once said, a rupee is a "note printed on silver" (Keynes, 1913, ch. III, p. 26).

In principle, in a perfectly competitive credit market, no one would borrow money from a bank before a payment comes due. This is the simple consequence of assuming rational behaviour, since there would be no point in borrowing money and paying interest on it while keeping it idle[5]. Money therefore *only comes into existence the moment a payment is made*. At that moment, in one and the same act, money is created, the borrower becomes a debtor to the bank and the agent receiving a payment becomes the creditor of the same bank.

A first conclusion may now be drawn. Since in a monetary economy money payments go necessarily through a third agent, the third agent being one that specialises in the activity of producing means of payment (in modern times a bank), *banks and firms must be considered as two distinct kinds of agents*. Firms are present in the market as sellers or buyers of commodities and make recourse to banks in order to perform their payments; banks on the other hand produce means of payment, and act as clearing houses among firms. In any model of a monetary economy, *banks and firms cannot be aggregated into one single sector.*

A definition of a monetary economy such as the one given above, implies a hypothesis on the historical origins of money which is widely

different from the one commonly accepted. It is usually believed that money was in the origin a commodity money, subsequently replaced by a paper currency, integrated in a still later time by banking credit (Menger, 1892). According to the definition of a monetary economy given above, money has always necessarily been in the nature of credit money, no matter whether embodied in a metallic coin or represented by paper notes.

III. – THE MONETARY CIRCUIT

We shall now give a brief description of the single phases of the monetary circuit[6]. The agents considered in this first description are only four : the Central Bank, Commercial Banks. Firms, and Wage-earners. Something concerning the Government sector will be added later.

The first step in the economic process is the decision taken by banks of granting credit to firms in order to enable them to start production[7]. If we consider firms as a whole, their only external purchase is labour force. All other exchanges being internal transactions, no further monetary payment is required. Only at the end of the production process firms buy capital goods to be used in the following period.

It this simplified case, therefore, initial credit requirements, being equal to the wage bill, depend on money wages negotiated on the labour market and on employment decisions taken by firms[8]. On the other hand, negotiations between banks and firms on the money market determine *the amount of credit actually granted* and the rate of interest charged to firms.

The working of the labour maket is strictly interrelated with the working of the money market. On the labour market, firms and wage-earners negotiate the level of money wages. Since money wages determine initial credit requirements, firms, while negotiating with unions on the labour market, will be trying to anticipate how the banking system will react to any possible increase in wages. Behaviour of firms on the labour market will therefore depend on the credit policy of the banking sector (Lavoie, 1987 ; Perroux, 1970, pp. 2284-5).

The second step is given by production and expenditure decisions. Once firms and wage-earners have come to an agreement, two separate actions are started. On the one hand firms decide on the number of workers to be hired, the level of production, the subdivision of production between consumption goods and capital goods. According to the theory of the circuit, firms *enjoy a total independence* for decisions

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concerning the real sector. Wage-earners on the other hand, can only decide how to spend their money wages. They will decide therefore how much to spend on the commodity market, how much to save, and how to allocate saving between securities and money balances (Keynes, 1930, ch. X (i), p. 136, and ch. XX, pp. 315-7). In this simplified case, with no Government and no foreign sector, securities sold on the financial market can only be issued by firms. Wage-earners have thus to choose between placing their savings in securities, or keep them in liquid form in bank deposits (Keynes, 1937b). As long as money wages are not spent, an amount of money equal to the wage bill is in existence. The total amount of money is a debt of the firms to the banking sector and a credit of wage-earners to the same sector. Money which is spent on the commodities market, as well as money spent on securities issued by firms, goes back to firms, and will be available for repaying debts to the banking system. As soom as firms repay their debt to the banks, the money initially created is destroyed.

With the destruction of money, the circuit is closed. Money will be created again if banks grant a new credit for a new production cycle. This may happen almost automatically, it firms, instead of repaying their debt, use the proceeds from sales of commodities and from issuance of securities, in order to start a new production process. But in principle, the very fact of using for a new cycle liquidity granted for the previous one, implies an agreement on the part of the bank, which is tantamount to the concession of a new credit.

If the expenditure of wage-earners equals the whole of their wages, no matter whether they spend money on the commodities market or on the financial market, firms get back the whole of their expenditure and they are able to repay fully their debt to the banks. In that case, the monetary circuit is closed without losses (or, as the French would say, *sans fuites*).

If on the other hand, wage-earners decide to keep part of their savings in the form of liquid balances (that is, banking deposits), firms will get back from the market less money than they have initially injected in it. In the terminology of circuit theory, there has been a loss in the circuit and firms will be unable to repay to the banks the whole of their debt. At the end of the cycle, money initially created will not be totally destroyed, and a part of it will be still in existence in the form of a debt of firms to the banks. If banks decide to grant firms the same amount of credit as they inititially did, *the total money stock in existence will increase*. In fact, the money stock will now be equal to the wage bill paid at the beginning of the new cycle plus the

amount of deposits carried on by wage-earners from the previous one. Thus, the stock of money in existence depends on the rate at which money is currently created and destroyed. An assumption is therefore required for the existence of a money stock, namely that wage-earners *spend their money incomes gradually over time.* This may well seem an assumption of irrational behaviour, if no uncertainty is present. It is however a necessary assumption, if we do not want the velocity of circulation to become infinite and money to disappear altogether form the system.

We must now go on from a synthetic overview of the monetary circuit to a more detailed analysis of each of the single phases composing it.

IV. – THE DEMAND FOR FINANCE

As already stated, negotiations between banks and firms on the money market determine the amount of finance banks are prepared to grant to the firms and the rate of interest to be charged on it.

Negotiations on the money market have an influence on the level of activity. Effective demand may fall owing to a decline in the marginal efficiency of investment; but, as Keynes himself said, the market may very well become congested owing to lack of finance, if banks are reluctant to engage in financially risky projects (Keynes, 1937b, p. 669; Parguez, 1975, p. 108).

Initial finance requirements of firms are determined by the amount of the wage bill plus, if we are considering internal payments among firms, the cost of intermediate goods.

An important point to be made at this juncture, is that finance requirements depend on the monetary cost of output in general, and *are not specifically connected with investment activity.* The problem of financing investment is a different one, appearing, as we shall see presently, not at the beginning but at the end of the economic circuit.

In fact, *initial finance* and *final finance* are widely different in nature, and they should not be confused. This is all the more important since most authors tend either to ignore totally problems of initial finance, or to deal jointly with initial and final finance, as though they were one and the same thing.

Initial finance is liquidity anticipated by banks in order to cover the current cost of output. It is in the nature of short-term liquidity, and is provided on the so-called money market.

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This point, elementary as it may seem, deserves a brief explanation. A bank cannot buy commodities by means of its own credit (if it did so, it would acquire commodities from the market without giving anything in return). But, as any other firm, a bank may use its own profits in order to buy any kind of commodities, including capital goods. In this case, there is no difference between a bank and any other kind of firm. The question is rather what the bank can finance when acting *within the limits of banking activity*, namely when it is not buying commodities but granting credit.

When bank credit is granted, two outcomes are possible. In the first case, the credit, sooner or later, is repaid. In this case the bank has only financed the production, or at most the temporary holding, of a capital good, which has subsequently found a buyer who has financed the purchase by means of his own income. (If the purchase had been financed by means of bank credit, there would still be a credit pending somewhere in the banking system). In the second case, the credit never gets repaid. In this case, some agent (a customer of the bank, or the bank itself, if the insolvent customer has been expropriated) becomes the owner of real goods by giving in exchange only a promise of payment. But this case would infringe the fundamental rule of any market economy, namely that no agent may make a final payment by means of a simple promise of payment. In principle, this second case must therefore be excluded. We can therefore conclude that bank credit can only be used in order to bridge the gap between production and resale of commodities. Its use is of financing production (no matter whether of consumption or of capital goods) but it cannot be used for permanent placings. The final ownership of commodities (again it may be consumption or capital goods) can only be acquired by spending earned income, something that bank credit cannot supply.

As a matter of fact, intermediate cases may actually be present. For instance when repayment of bank credit is delayed, and credit is renewed again and again before the customer is declared insolvent. But even in such cases, the final outcome should be that the bank gets back its money, either by regular payment or by selling the property of the insolvent customer. Initial finance granted to firms is therefore in the nature of *temporary finance*.

Final finance is liquidity that firms get back as proceeds from sales of commodities or from new issues on the financial market. It would be wrong to think that the cost of consumers goods should be totally covered by proceeds from the sales of consumption goods, or that investment should be totally financed on the financial market. What

matters to firms is that *final finance be sufficient to cover total initial finance*. If this happens, firms will be able to repay their debt to the banks and will consider themselves to be in equilibrium.

It should be clear by now that *investment finance is supplied by final finance and not by bank advances*. What banks do is a totally different operation, namely to supply initial finance in order to cover current costs of production, both of consumption and of capital goods. Investment is financed by agents prepared to buy capital goods – be it a direct purchase of means of production in kind, be it an indirect purchase performed by acquiring securities on the stock market. Since financing investment means buying capital goods, investment can only be financed by agents who are spending their own incomes. Banks (provided legislation allows them to do so) can finance investment only by spending their own net profits. If a bank could buy capital goods (or any other commodity) by means of its own credit creation, it would be infringing the fundamental rule of any monetary economy, namely that no agent may make a final payment by issuing his own debt.

V. – THE CREDIT POTENTIAL OF THE BANKING SYSTEM

The analysis of the supply of money to be found in the theory of the circuit strongly emphasizes the principle that bank deposits are created by loans, and not loans by deposits. In agreement with the basic principles of money and banking, it therefore stresses the fact that the credit potential of the banking system depends on the monetary base, the reserve ratio, and the preference of the public as between cash and deposits. The public can only influence the level of the credit potential by modifying its preference for cash but, apart from that, once reserves are given, the amount of credit created by banks only depends on the demand for loans.

These are well-known principles. Still, they have not been constantly applied to the microeconomic analysis of bank behaviour. As a consequence, statements such as : "The activity of a bank consists in collecting deposits and lending them at interest", or "The lending capacity of the banks depends on the willingness of the public to open deposits", or even "The liquidity of the banks is increased whenever the preference of the public for deposits as against other forms of wealth is increased", are still common in the literature. Similar ideas stem out of the basic prejudice, according to which banks are mere intermediaries between depositors and investors. They are also loosely connected to the equally popular idea that banks are in fact collecting savings and

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financing investment. This image is just one step from the idea that an adequate amount of saving should be previously formed and kept aside, before any investment can be actually undertaken[9].

When a bank grants credit to an agent and as a consequence a deposit is created, the bank is engaged to pay upon demand the amount for which credit has been granted.

Let us begin to analyse the measure of the credit potential by an extreme case in which one single bank is serving all agents present in the market (or in the 'economic space', as some would say) and there is no Central Bank or any other monetary authority imposing rules on commercial banks. In this hypothetical case, only one means of payment exists, namely deposits created by the only bank present in the market. In this case, the bank has *an unlimited credit potential*, and runs no risk of insolvency. Any new financing, no matter how big, can only give rise to payments made to other customers of the same bank. In order to make such payments, the bank has only to open new deposits in the name of the payees – something the bank can do with a strike of the pen[10].

A problem of solvency only appears if at least two different means of payment exist. This happens if banks are more than one, or if money issued by the Central Bank is used alongside with deposits of commercial banks. If there are two banks, agents receiving a payment from a customer of the first bank, can ask for their credit to be converted into a deposit with the second bank, which means that the first one will be called to make a payment in favour of the second one.

The question now arises about how a bank can make a payment in favour of another bank.

A first possibility is that the first bank pays the second one by opening a deposit in its name. If that form of payment is accepted, the two banks are acting as though they were one and the same bank. The credit potential of a number of banks acting like that would be unlimited, just as it happens when the market is being served by one single bank.

A second possibility is that, while the first bank is granting credit to its own customers, the second bank is also expanding credit *at the same rate*. Provided, if reciprocal payments of the two banks balance, no actual payment has to be made by any one of the two. In this case, provided the shares of the two banks in the deposits market are constant, again there are no limits to credit creation. As Keynes said, "there is no limit to the amount of bank-money which the banks can safely create, *provided that they move forward in step*"[11].

If however reciprocal credits do not compensate, a payment must be done. As it happens with single agents, a bank cannot make a payment just by issuing a promise to pay, since this would be a credit transaction and not a monetary payment. A monetary payment, as distinguished by credit, can only be made by using the promise to pay of a third party. Just as single agents use bank deposits, namely promises to pay issued by banks, *single banks use promises to pay issued by the Central Bank*. The role of the Central Bank is in fact of acting as third party between single banks so far as their reciprocal payments are concerned. In order to enable a bank to make a payment to another bank, the required amount of Central Bank notes must be made available to it, either in the form of notes previously supplied and kept as reserves, or in the form of stand-by credits with the Central Bank.

The moment the Central Bank allows a commercial bank to draw on its account in order to pay another bank, money of the Central Bank is being created. Central Bank money is therefore *a debt of commercial banks towards the Central Bank itself*.

In this simplified model where there is no Government sector, reserves can only be created if the Central Bank opens credit positions with single commercial banks. The total amount of reserves is therefore *a debt of commercial banks towards the Central Bank*, just as the total amount of deposits is a debt of firms towards commercial banks.

In a more complex model, including the Government sector, the possibility exists for the Central Bank to create money in order to finance the Government deficit. Central Bank money thus created is no longer a debt of commercial banks, but *a debt of the Government towards the Central Bank*.

We now consider the question of what determines the credit potential of one single commercial bank which acts along with other banks. We remember that the credit potential of a single bank serving the whole market was found to be infinite. The opposite extreme case is that of a single bank having just one customer. The credit potential of such a bank is strictly limited to the amount of its reserves. In fact when the bank has granted credit to an agent in the amount of its own reserves, as soon as the agent has made use of the credit received by making a payment to another agent, since by definition the second agent is the customer of a different bank, the first bank will be held to pay out the whole of its reserves, and its activity as a bank will come to an end, unless the Central Bank grants it more reserves.

Another way of stating the same result is to say that a bank serving the whole market needs no reserves, while a single bank having only

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one customer needs a 100% reserve ratio. An immediate consequence is that, in intermediate cases, when each bank serves more than one agent but not the whole market, each bank will need an amount of reserves proportional to the fraction of the market it is serving. The higher the fraction of agents banking with any bank, the lower will be the reserve requirements of that bank, and the higher its credit potential for any given amount of reserves.

This is another reason (beyond that of acquiring reserves from other banks) why single banks are always actively trying to expand their own economic space by capturing new customers and by increasing the amount of their deposits. This can also explain the argument, so popular in the literature, that the credit potential of a bank depends on its ability in collecting deposits, and that therefore the very activity of a bank should be described as that of being an intermediary between depositors and investors.

Now let us turn to the monetary base. An isolated bank has two ways of acquiring reserves : it can borrow reserves from the Central Bank, or it can acquire reserves by collecting deposits. The second kind of reserves, those gathered by collecting deposits, may have been introduced in the economy because other banks have borrowed them from the Central Bank (or, if the Government sector is being considered, because there has been some money financing of the Government deficit). Where reserves come from is immaterial to the single bank. In fact reserves of any kind contribute equally well to building up the credit potential of the bank. For a single bank, reserves collected by means of deposits may be just as costly, if not more costly, than reserves borrowed from the Central Bank.

The preceding argument can be summarized by way of simple formulae. If r_j is the reserve coefficient and Z_j is reserves (notes of the Central Bank) held by the single bank, the potential level of deposits D_j (whenever agents use only deposits as means of payment, so that reserves are wholly in the hands of commercial banks) is :

$$D_j = \frac{1}{r_j} Z_j.$$

The reserve coefficient can be defined as an inverse function of d_j, the share of the bank in the deposit market :

$$r_j = 1 - d_j,$$

while the fraction of total reserves held by the single bank can be taken as equal to its share of the deposit market :

$$Z_j = d_j Z.$$

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Deposits thus become :

$$D_j = \frac{d_j}{1 - d_j} Z.$$

Since reserves Z are the sum total of debts of commercial banks and of debts of the Government towards the Central Bank (we are now assuming Government to be present) :

$$Z = Z_B + Z_G,$$

and since the balance sheet identity of the single bank imposes that assets (loans plus reserves) equal liabilities (deposits plus debts towards the Central Bank) :

$$L_j = D_j + Z_{jB} - Z_j,$$

we finally get :

$$L_j = \frac{d_j}{1 - d_j} [d_j Z_G + Z_B].$$

The above formula is a measure of the potential of the bank in the loans market. As already observed, the fact that the credit potential of a single bank depends not only on the total amount of reserves Z, but also on its own economic space d_j, explains why bankers insist on the idea that it is by collecting deposits that they are enabled to grant credits. It should be clear that, while this view is correct if referred to single banks, it can explain the credit potential of the banking system as a whole only to the extent that reserves are supplied by money financing of Government deficits[12].

VI. – INCOME FORMATION, PRICES, AND PROFITS

In current economic theory, three basic models of income formation can be distinguished, the neo-classical model, the Keynesian model, and the Kaleckian model.

According to the neo-classical model, the level of economic activity is determined by individual preferences. Households as suppliers of labour, by balancing marginal utility of income and marginal disutility of labour, determine the number of hours worked. The level of real income is thus determined. The distribution of real income between

wages and profits is performed by the market so as to equate real wages to the marginal productivity of labour.

In the Keynesian model (Keynes, 1936), activity levels are set by effective demand, as determined by autonomous investment coupled with a given propensity to consume out of income. Since firms are acting on the basis of given technological constraints (which determine their supply function), once the level of the social dividend has been determined by aggregate demand, its distribution between wages and profits follows the marginal rule.

In the Kaleckian model (Kalecki, 1938, 1939, 1942, 1971), the absolute amount of consumption and investment is decided upon by capitalists (or alternatively, capitalists decide the level of investment, while consumption is determined as a residual, the economy being in full employment conditions). Given the consumption propensities of capitalists and wage-earners respectively, distribution is then determined so as to equate demand and supply on the consumption goods market (equilibrium on the consumption goods market implies equality of savings and investment)[13].

It need not be emphasized that neo-classical theory is strongly criticised by circuit theorists because of its basic assumption of an economic equilibrium determined by individual choices, with the consequent acceptance of the principle of consumers' sovereignty. In the circuit approach it is rather producers' sovereignty which prevails.

Once the neo-classical approach is rejected, the choice with which the theory of the circuit is confronted is between the Keynesian theory of aggregate demand, and the Kaleckian theory of income distribution.

In principle, circuit theorists do not refuse the approach of the *General Theory*. In fact, it has often been remarked by some of them that the *General Theory* implicitly contains the idea of a monetary circuit[14]. Still, in spite of its being consistent with the circuit approach, the Keynesian model of the *General Theory* is not adopted by circuit theorists, who prefer to follow the model of income distribution first outlined by Keynes in the *Treatise*, elaborated by Kalecki, and later on utilized by the post-Keynesian school (Lavoie, 1982). The Kaleckian model in fact, with its emphasis on the one-sided determination of output on the part of firms, reflects better the assumption of total independence of firms as for decisions concerning the real sector.

Turning now to explaining price formation, let us imagine that firms put on sale the whole of output currently produced. They then decide to enter the market also on the demand side in order to buy a specified fraction of production. In order to buy the desired amount of output,

they need additional finance, which is added to the finance granted them at the outset for the purpose of paying the wage bill.

Let us adopt the following symbols :

w	Money wage rate
N	Total employment
c, s	Consumption and savings propensities of wage earners
π	Average productivity of labour
B	Total amount of bonds issued by firms
i	Rate of interest paid on bonds
p	Market price of output.

In each period, interest payments to savers, which must be added to labour income, are defined as being equal to iB.

The total supply of commodities will be equal to :

$$X = N\pi.$$

Market demand will be given by the sum of demands coming from wage earners and from firms. The demand from wage earners is :

$$C = cwN + ciB$$

If firms have decided to buy the fraction b of total output, their demand, in monetary terms, will be :

$$I = b\pi Np.$$

The level of prices at which demand and supply are equal will be given by the following equality :

$$\pi Np = cwN + ciB + \pi bNp.$$

It should be noticed that the preceding equality may seem as being in the nature of an equilibrium condition in a perfectly competitive market. It might as well be interpreted as being a condition imposed by firms enjoying an oligopolistic position and being therefore able to sell finished products at a price high enough to secure the desired profit margins.

From the preceding equation, we get the level of money prices :

$$p = \frac{1-s}{1-b}\left[\frac{w}{\pi} + \frac{iB}{\pi N}\right]$$

The price level as determined by the preceding equation suggests the following :

a) the level of money prices does not depend on the quantity of money. In fact, the quantity of money does not even appear in the equation for the price level. The money stock, being a totally endogenous variable, cannot enter into the determination of the price level;

b) the level of money prices depends instead on the savings and investment propensities (s and b), as well as on the level of money costs;

c) any change in the level of money prices will induce a corresponding change in the money stock, so for as the velocity of circulation is constant.

The price equation can be interpreted as follows : the term in square brackets is a measure of the money cost of output (namely wage costs plus interest costs per unit of output) while the factor $(1 - s)/(1 - b)$ is in the nature of a profit factor.

The rate of profit, can be defined as the ratio between net product and the money cost of production :

$$r = \frac{N\pi p - (wN + iB)}{wN + iB} = \frac{1 - s}{1 - b} - 1 = \frac{b - s}{1 - b}$$

Total profits in money terms are defined as the rate of profit times the money capital invested :

$$P = r(wN + iB) = \frac{b - s}{1 - b}(wN + iB).$$

By dividing by the price level, we get total profits in real terms :

$$P/p = \frac{\dfrac{b - s}{1 - b}(wN + iB)}{\left(\dfrac{1 - s}{1 - b}\right)\left(\dfrac{w}{\pi} + \dfrac{iB}{\pi N}\right)} = \left(\dfrac{b - s}{1 - s}\right)\pi N.$$

This result invites three comments :

a) the level of profits is strictly related to the formation of the price level. As Schmitt (1984, ch. 4, pp. 134-5) would say, profits are born in the commodities market;

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b) real profits to not depend on the rate of interest paid on bonds. As a consequence, any attempt to control private investment by controlling the rate of interest is bound to be without effect, since it does not alter the level of real profits. This result, on which more comments will be made below, cannot be extended to interest paid to the banking system, since interest payments made to banks involve a transfer of real wealth from the industrial sector to the financial sector;

c) if $s = b$, namely if the propensity to save is equal to the fraction of output that firms want to keep for themselves (in short, we might say, if saving equals investment) money prices reduce to :

$$p = \frac{w}{\pi} + \frac{iB}{\pi N},$$

which means that prices equal money costs. Correspondingly, profits are zero, as in a perfectly competitive equilibrium ;

d) if $s = 0$, namely if wage-earners consume the whole of their incomes, real profits become :

$$P/p = b \, \pi \, N$$

namely profits equal investment. Since, as we saw before, this is also a measure of the expenditure of capitalists in real terms, in this case, the famous conclusion that "wage-earners spend what they earn and capitalists earn what they spend", is literally verified.

It should be added that profits analysed so far are profits gross of interest payments made to banks. In order to get net profits, interest payments must be deducted. If, as assumed more than once, initial financing to firms is equal to the wage bill, then profits net of interest will be :

$$P_n = r(wN + iB) - iwN.$$

The preceding results can be easily extended to the case in which Government expenditure is present (Graziani, 1985).

Two cases should be distinguished, according to whether Government expenditure takes the form of transfers to households or of direct purchase of commodities on the market. In both cases, by way of example, we shall assume taxes to be wholly levied on profits, and subsidies to be totally given to labour. Taxes, in spite of being paid by firms, do not reduce their purchasing power, which only depends on bank credit. The consequence is that firms will still be able to buy the same amount

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of commodities as they would buy without taxes. Therefore, whatever the level of taxation, real profits are not touched.

Moreover, since firms are assumed as before to take autonomous decisions as to the level of output, subsidies will not increase real consumption of households. The only difference will be that money prices will be higher, in proportion to subsidies being paid. This is of course true only insofar as the presence of taxes and subsidies does not induce firms to revise their own output plans.

If Government expenditure takes the form of direct purchase of commodities, Government and households will compete on the commodities market for the purchase of the amount of goods firms have decided to put on sale. Crowding out takes place at the expense of households, who see their real consumption reduced. Profits instead will be untouched since, as already noticed, real profits coincide with the amount of commodities firms have decided to buy for themselves, and the purchasing power of firms is practically unlimited. As a consequence, in spite of taxes being levied on profits, firms do not pay any tax. As Kalecki once pointed out, taxes, if measured, in real terms, are paid by wage-earners only (Kalecki, 1935, 1937; see also Keynes, 1930, p. 343).

Finally, since the price level only depends on aggregate demand and not on the existing quantity of money, the inflationary impact of deficit spending will not depend on how the deficit is financed, whether by debt or by money creation, but on its amount only.

VII. – FINANCIAL MARKETS

Income which is not spent on the goods market gives rise to monetary savings which, as already said, can either be spent on the financial market, namely on securities issued by firms, or kept in liquid form in a bank deposit. Savings kept in bank deposits are money lost to the firms, and give rise to an increase in the debt of firms towards the banking system.

Banks and firms thus compete on the financial markets for getting hold of the monetary savings of wage-earners. Banks do so by increasing the attractiveness of deposits (first of all by raising interest paid on deposits whenever allowed by the local legislation), and firms by increasing the yield of the securities they issue.

The question now arises about how far firms can go on bidding up interest paid on securities. The answer is that in principle there is no

limit to the increase in interest rates offered, *because interest is paid at no cost by firms to savers.*

If a saver chooses to keep a pound for ever in his bank deposit, firms will never be able to repay it to the banks and will pay interest on it for ever. If firms manage to issue a pound's worth securities, they will save a perpetual annuity of interest charges. Since, however, they will have to pay interest on securities sold to savers, and since savers will decide anyhow to keep in their cash balances a fraction of interest payments received (as of any other form of income), that percentage will be lost to firms, and on it firms will have to pay interest to the banks. It is, however, clear that gains by-pass losses, since by issuing bonds, firms save interest on the whole money value of the issue, while they pay extra interest to the banks only on a percentage of the bonds' yield.

The problem is now whether gains by-pass losses no matter what the level of the interest rate paid on securities may be. A good starting point for answering this question is given by the simple case in which firms offer an interest rate high enough to induce savers to place the whole of their savings on the financial market. In this case, firms are sure to get back, at the end of each period, the whole of the money they have initially spent. Part of it will go back to them as proceeds from sales on the goods market, the rest as proceeds from issuing securities. The final outcome will be that firms will be able to repay the whole of their banking debt. In this case, interest payments to savers (no less than wages paid to workers) will only be a clearing transaction for firms. The level of the rate of interest paid on securities, is thus totally irrelevant. It will therefore always be in the interest of firms to raise interest rates offered to savers up to the level which induces savers to run down their cash balances to a minimum. This result was already implicit in the equation for real profits appearing in the model of the preceding chapter. But it is not true in the case of the interest paid by firms to banks. We discuss this proposition next.

Clearly, at the end of each period firms must pay interest at the agreed rate on sums borrowed from banks. It is also clear that, in order to be able to pay interest to banks in money terms, firms must get money receipts from some other source. In fact, so far as the only money present in the market is the money that firms themselves have injected in it by paying wages, what they can get back by selling goods or by issuing securities can equal, at most, their initial expenditure. This means that in the most favourable case, firms will be able to repay their debt. Money will never be available for the payment of interest.

The situation is therefore as follows. On the one hand, firms owe the banks an amount of money equal to interest charged on loans. On the other hand, banks need to make use of interest payments made by firms in order to pay wages and salaries to their employees, buy commodities on the market, and possibly pay interest on deposits. If the expenditure of the banks equals interest that firms owe to them, the problem is solved (in any case, expenditure on the part of the banks cannot exceed their net income, otherwise banks would be purchasing commodities by means of credit created by themselves, which would violate the fundamental rule of a monetary economy).

Under a technical point of view, we can imagine that, when interest payments come due, firms borrow the necessary money from the banks. Subsequently, banks spend the money they have got from the firms (be it on wages and salaries, or on commodities sold by firms, or in the form of interest on deposits). The money thus comes once more in the hands of firms, who can make a final payment to the banks. In substance, what has taken place is a barter, firms having paid interest in kind (Lavoie, 1987; Graziani, 1984).

What share of output firms will have to yield to banks in real terms depends both on the level of interest rates and on the level of prices charged by firms on commodities sold to banks. High interest rates may therefore induce firms to protect their real profits by charging higher prices, thus giving rise to a possible round of inflation.

The consequence of interest being paid to banks is that real output gets divided into *real wages, industrial profits,* and *financial profits.* A *financial capital* is thus gradually built up by banks, along with an *industrial capital* built up by firms.

VIII. – THE "EQUILIBRIUM" CONDITIONS

"Equilibrium" prevails if firms, by selling commodities and by issuing securities, *get back the whole of the money they have initially spent and that they now owe to the banks.* Whenever the money cost of production along with the existing quantity of money (and therefore the debt of firms towards banks) are constant, firms are in "equilibrium". In this case, one would say that *the circuit gets regularly closed* at the end of each period.

Let us now consider an increase in money holdings of wage-earners. Two main cases should be distinguished :

    a) A first possibility is that wage-earners *want a once and for all increase in money holdings.* It this case, once their cash balances

have reached the required level, consumers will resume their regular spending, and, with the usual time-pattern, again spend the whole of their incomes as before. In this case, there will be a once and for all increase in the debt of firms and a once and for all increase in the money stock. If banks accept such once and for all change and keep financing firms at the previous time rate and charging them the same rate of interest, the change in liquidity preference may go without repercussions on activity levels;

b) A second possibility is that wage-earners, owing to uncertainty or other factors, decide constantly *to devote a fraction of their money savings to increase their cash balances*, so as to realise a continuous increase in their money holdings. In this case, the money stock and the debt of firms becomes increasingly higher and higher[15].

Two reactions on the part of the banks are possible. Banks may react by refusing to renew loans in the previous amount, in which case, firms are forced to scale down their activity levels. On the other hand, banks may also consider as normal a situation in which the firms' debt keeps increasing year in year out. In this case, it will be up to the firms to decide whether or not to accept to go more and more into debt.

It should be recalled that what firms need in order to see their debt reduced is *not a reduction in saving, but a reduction in liquidity preference*. A reduction in saving might increase the equilibrium level of activity (if the model of income determination is the one of the *General Theory*) or alternatively it might increase the price level (if we follow a Kaleckian model). In no way a reduction in savings can eliminate or reduce the debt of firms towards banks, so long as savers are placing a fraction of their savings into cash balances.

If investment decisions are considered to be autonomous, in that they do not depend on the level of interest rates prevailing on the financial market, demand failures can only originate from a decline in what Keynes called the "marginal efficiency of investment", based on long term expectations of entrepreneurs. If this is the case, mere monetary policies can do very little to reverse the trend[16]. The fact of considering the money supply as endogenous reinforces this result.

Circuit theory, as we know, defines the money stock as a debt of firms towards the banks. The consequence of such a definition is that, as soon as their own money balances exceed their equilibrium level, firms will reduce their debt, therefore destroying money by the same amount. Instead of having a constant money stock and a real quantity of money

automatically increased by declining prices, we have a nominal money stock automatically declining with declining prices, and a constant real money stock. With a constant real stock of money, there will be no downward pressure on the rate of interest, and no possible incentive to higher investment. The conclusion is that demand failures originating from the real side, will not be counterbalanced by declining interest rates.

Once again, the fact of defining the monetary base as being created by the banking system and not as being the consequence of a Government deficit seems to have far reaching consequences.

IX. – SUMMARY AND CONCLUSIONS

The preceding presentation has made clear that the theory of the circuit faces the same fundamental questions as any other macroeconomic theory, namely how the *level of activity* of a economic system is determined and what determines *the distribution of the social dividend* among the main social groups.

The basic idea is that, in a wage economy, possession of wealth as such does not imply being admitted to a share of real income. The ownership of resources as such, be it in the form of material wealth or of working ability, may only entitle its owner to a money income, the real content of which escapes any possible negotiation. Firms instead, being able to acquire means of production, are also able to determine activity levels, real consumption of wage earners, and the rate of accumulation.

Since access to money and credit is a key factor in a wage economy, producers of money and credit (banks and other financial institutions) enjoy a privileged position and are admitted as such to a share of total product (Neisser, 1928, p. 13). It is therefore a typical aspect of the theory of the circuit that banks and firms can never be merged into one single sector. A rigourous distinction has to be made between banks, as agents producing credit, and firms as agents using credit in order to purchase labour force and produce commodities.

The typical features of the model of the circuit may now be briefly recalled.

As already said, the non-Government sector is aggregated into three different operators. Commercial Banks, Firms, and Households. This allows not only to analyse the different strategies of banks and firms and their influence on activity levels, but also to enquire about the distribution of profits between the industrial and the financial sectors.

The analysis of the circuit starts with the creation of money. While the typical macro-economic models assume the whole of the existing monetary base as coming from the Government deficit, the theory of the circuit assumes an "equilibrium" position to be fully consistent with the existence of money created independently of any Government deficit, and therefore with the permanent presence of a debt of firms towards banks, as well as of commercial banks towards the Central Bank.

An immediate consequence is that the theory of the circuit considers the money stock to be *a strictly endogeneous variable*. Money is created because firms need finance in order to pay wages and buy means of production. Initial finance has therefore to cover current costs of production.

The circuit approach helps thus so dispel a recurring mistake in the literature, according to which finance supplied by banks is confused with the financing of fixed investment. Investment needs being financed in the sense that capital goods currently produced have to be sold to some agent wanting to keep them as real wealth. Only if all commodities produced are also sold, firms will get back the money they have advanced for producing it, and will thus be able to repay their debts to the banks. Under this viewpoint, no difference exists between capital goods and consumption goods. As emphasized by the theory of the circuit, the point is rather that for firms to get back the money they have spent in advance, they must get proceeds equal to the money incomes they have created. In order to do that, they must collect not only what wage-earners spend on buying commodities, but their money savings as well. This forces firms to issue securities on the financial markets. The function of the financial markets is therefore of bringing back to firms the monetary saving of wage-earners. Only under the very special assumptions of neo-classical equilibrium, proceeds from issues on the financial market equal the monetary value of investment, so that investment appears to be financed by means of long-term issues.

It is generally understood that in Keynes's *General Theory* no problem of initial finance exists and consequently banks have no autonomous role to play. In the *General Theory* it is in fact implicit that banks and firms share the same short-term expectations regarding aggregate demand, so that whenever a firm is prepared to undertake a certain level of production, there will also be a bank ready to finance the corresponding costs[17]. Such similarity of expectations between banks and firms is unknown to the theory of the circuit. The theory of the circuit revives instead the role of the Schumpeterian banker, on whose evaluations the destinies of the firm depend[18]. Few years after the

publication of the *General Theory*, Keynes expressed the same view when he pointed out that a situation in which a firm is asking for credit provides a clear picture of what is "the power of the banks" (Keynes, 1937a, p. 248).

A typical aspect of the theory of the circuit is the solution given to the problem of income distribution. Here the basic point is that firms, once in possession of the neccessary provision of liquidity, enjoy a free disposal of means of production and, within limits set only by social constraints, can impose on the market any level of employment as well as any investment rate. They can thus determine real consumption of wage-earners taken as a whole. But, according to the theory, by setting the level of real consumption, they also set the level of real income of wage-earners, since, for households taken an a whole, real consumption and real income coincide. It is in fact a point in the theory that financial wealth, while being a possible source for increasing consumption of single individuals, is no wealth to households as a whole.

An immediate consequence is that an equilibrium position as defined by the theory of the circuit does not imply any definite role for households or consumers. The principle of consumer' sovereignty (or even a milder principe of consumers preferences as being somehow relevant to economic equilibrium) is unknown to the theory of the circuit. Here the traces of Schumpeter's teaching can be detected once more.

A further consequence is that, firms being totally autonomous in their production strategies, and investment being independent of interest rates, no crowding out is admitted as for private investment. If a portion of aggregate demand is displaced by Government expenditure, this can only be consumption of wage-earners.

"Equilibrium" as defined by the theory of the circuit is not necessarily unique or stable. It is in fact in the nature of circuit analysis to allow for a multiplicity of possible "equilibria", depending on the strategies of banks and firms. This view is reinforced by the fact that, the money stock being endogeneous, no Pigou effect can be invoked as a stabilizer of last resort.

NOTES

1 – A general overview of the theory is given by Lavoie (1987). An attempt to define the position of the theory *vis-à-vis* mainstrean economics is contained in the recent book by Cencini (1988, Part II). A critical examination of Marxian theory from the viewpoint of circuit theory is performed by Cencini and Schmitt (1976).

2 – Turnovsky is a typical case in point. He recognizes that "the Central Bank may provide reserves by lending to the commercial banks", but considers this element as

negligible (1977, p. 18). As a consequence, in the rest of his analysis he assumes the monetary base as being totally supplied by means of Government deficit (pp. 68-70). The same treatment is given by Tobin (1983a). Such an approach is openly disregarded by Godley and Cripps (1981, p. 82-3), and is criticized by Sawyer (1985) : "The traditional Keynesian has pictured money as exogenously created by governments through open market operations and by government deficits. This has the unfortunate consequence of identifying money creation with the unfunded government deficit, which was translated over into a link between the money supply and the public sector borrowing requirement". (p. 16). See also De Vroey (1984); Moore (1984a and 1984b); Cartelier (1985); Lavoie (1987).

3 – The term "pure credit economy" was used by Wicksell (1898, chapt. IX, Sec. B); and by Robertson (1928). The model of an economy entirely based on credit is also outlined by Hawtrey (1923, Ch. I), and Robertson (1926).

4 – Parguez (1981 and 1984, p. 98); Graziani (1984, p. 10); Cencini (1988), pp. 9 ff.). Heinsohn and Steiger (1983) present a careful demonstration of the fact that even in ancient history true money has always been a pure credit money.

5 – This point was already made by Keynes in the *General Theory* (1936, p. 196). It is to be found again in Keynes (1937a, p. 246), and Keynes (1937b, p. 669; *C.W.*, XIV, pp. 208 and 223). See also Barrère (1979, p. 127, and 1985b, p. 41).

6 – Parguez (1981, pp. 420 ff.); Arena (1982, p. 435, and 1987, pp. 13-16); Vallageas (1985); Lavoie (1987). As already mentioned, a full description of the circuit can already be found in Wicksell (1898, chap. IX. Sec. B).

7 – Some authors would say that by so doing, banks are creating money. This is denied by Schmitt (1984, chapt. 4, p. 110; 1986, pp. 78 and 83). Schmitt is the author who has gone more deeply into the analysis of banking activity. His point is that since banks can only grant a loan against a promise of repayment made by an agent in the market, money, is in fact not created by banks but by market agents themselves. Parguez (1984, p. 98) gives a similar version of the same point by saying that money is a promise of a firm endorsed by a bank.

8 – Graziani (1984, pp. 6 and 26); Moore (1983, p. 546, and 1984b). Godley and Cripps (1981), prefer to say that the amount of money outstanding is equal to inventories valued at cost. Others prefer to add to wage costs the cost of intrafirm transactions; see Parguez (1985a, p. 234). The same problem had been already discussed by Lundberg (1937, p. 122-3).

9 – A detailed account of what Schumpeter named the old prejudice according to which deposits make loans, is given by Schumpeter (1954, pp. 1113-7). A brilliant criticism of the same idea can be found in Schneider (1962). Schneider's point is that even if banks tried to use deposits in order to make loans, they would be unable to do so. Once a deposit has been accepted, the depositor can make use of it on demand any moment, which means that, by depositing legal tender with a bank, a depositor is not losing liquidity. If the bank now makes a new loan, it is granting liquidity to another agent *without* subtracting liquidity to anyone else. The bank is therefore not "transmitting" liquidity from one agent to another one, a practice that would imply a loss of liquidity for one of them and a gain for another one. The bank is in fact creating new liquidity. See Schneider (1962, pp. 55-9).

10 – Wicksell (1898, chapt. VI, Sec. C, pp. 64 ff.). The analysis of credit supply without a Central Bank has recently been revived in the debate on free banking; see Goodhart (1988, chapt. II). Similar older debates can be found in Bagehot (1873), and Smith (1936).

11. Keynes (1930, I, chapt. 2(i), p. 26). As the banker and economist Hahn (1954) once said, only if it were possible to draw money out of a bank deposit and take it to the moon, troubles could be created to the banking system as a whole (p. 88). Whether or not moving in step implies collusive practices among banks is a delicate question, especially relevant to the discussion on the advantages and disadvantages of free banking.

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12 – The above conclusions can be compared to the conclusions of the model contained in Tobin (1982b), the most advanced one in the field. Tobin recognizes the fact that the deposits of a bank are partly created by its own loans (his "retention function"). His definition of the deposits of a single bank contains, however, an autonomous element D_0, the nature of which is not explained. In order for his analysis to be consistent, the D_0 elements of the single banks should add up to zero (in which case deposits are wholly created by loans) or their sum-total should equal the monetary base created by Government deficit (this being the only deposit of commercial banks not requiring the existence of a previous loan).

13 – The working of the Kaleckian model could also be described by saying that firms sell consumption goods at a price such as to allow them to earn profits equal to investment. As we shall show later, the two ways of describing the working of the model are essentially the same.

14 – The idea that Keynesian theory implicity contains a monetary circuit is suggested by Barrère (1979, p. 160; 1985a, p. 22) and Poulon (1980; 1982a; 1982b; ch. 11, p. 300). See also Marjolin (1941) and Kregel (1986b).

15 – Some authors would say that, since firms are not getting back the money they have anticipated, the circuit does not get closed. This terminology is strongly opposed by Schmitt (1984, p. 159 and pp. 277-82), who considers cash balances as long-term financial credits, not as money. In Schmitt's conception money, being a mere means of payment, only exists at the very moment a payment is made (Schmitt, 1984, p. 247).

16 – This is a crucial divergence between the theory of the circuit and the approach of Keynes in the *General Theory*. Kregel (1987) shows how difficult it can be to reconcile Keynes with circuit theory if one does not want to drop the Keynesian theory of investment.

17 – This is implicit in Keynes' idea of the continuous overlapping of short-term expectations and realised results (Keynes, 1936, ch. 5, ii).

18 – A development, in circuit terms, of the Schumpeterian idea of an independent judgment of the banking system as to the marginal efficiency of investment is given by Messori (1985 and 1986).

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